Claims 1 and 2 were pending in the application at the time of the Office Action. Claims 1 and 2 were rejected as being obvious over cited art. By this response applicant has not cancelled, amended, or added claims. As such, claims 1 and 2 remain pending.

Paragraphs 2 and 3 of the Office Action reject claims 1 and 2 under 35 USC § 103(a) as being unpatentable over U.S. Patent Application Publication 2002/0159703 to McGreer ("*McGreer*") in view of the Applicant's alleged admitted prior art ("the APA")(Figure 9B of the application). Specifically, the Examiner concedes that *McGreer* "fails to explicitly disclose a far-field upper limit of 0.217 and a low limit of 3.14 radians," but asserts that "it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the range limits as disclosed for the most efficient operation of the AWG, since it has been held that where general conditions of a claim are disclosed in the prior art (McGreer's equations), discovering the optimal or workable ranges involves only routine skill in the art." Applicant respectfully traverses this rejection.

The Examiner asserts that *McGreer* discloses the general conditions of claim 1, referring to the two equations shown in paragraphs [0021] and [0075] of *McGreer*. The two equations referred to in *McGreer* are general mathematical expressions of a parabola waveguide shape and a taper waveguide shape as a second order function and a linear function, respectively. That is, these expressions are merely general equations of a parabola shape and a taper shape. As such, the equations are not what were particularly disclosed by *McGreer* and are not the general conditions of the present invention; they are simply general mathematical expressions of the shapes.

In view of this, Applicant submits that there is no technical significance of the present inventions in the two equations themselves despite being erroneously pointed out as the general conditions of the claims in the outstanding Office Action. As such, the fact that the two general

equations of claim 1 are disclosed in *McGreer* is not enough to establish obviousness of the particular claimed range. Instead we must look at the significant differences between the claims and the cited art.

The important technical significance of the present invention compared to the cited art is that the claimed invention <u>quantitatively recites a range</u> of Z_0 which significantly reduces wavelength dispersion compared to the prior art <u>by using a ratio of the amplitude absolute value and a relative phase</u> between a main peak and first side peaks in the field distribution. Applicant notes that this approach is new and has not been used before in the prior art.

More specifically, as shown in paragraph [0022], "the present invention realizes an equiphase rectangular field distribution and the transmission characteristic and low-wavelength dispersion of a flat pass band by specifying the field distribution of far-fields of a parabola waveguide as an approximate scale with a sinc function in an arrayed waveguide grating type optical multiplexer/demultiplexer circuit." Paragraph [0022]. By doing this, Applicant has determined that "it is possible to simultaneously realize the broad band characteristic of a transmission wavelength of a conventional parabola waveguide and the low wavelength dispersion characteristic which has not been realized so far at the same time." Paragraph [0026]. As can be seen, the present invention is based on a totally new idea as shown above.

The Examiner infers in the rejection that the range of Z_0 of claim 1 is just an "optimal or workable range" and further asserts that "discovering the optimal or workable ranges involves only routine skill in the art." Applicant disagrees. As noted above, the cited *McGreer* only explains the general shapes by the equations in paragraphs [0021] and [0075], and does not show <u>any</u> specific ranges of waveguides length Z_0 which reduces the wavelength dispersion value. Additionally,

McGreer does not teach, suggest, or motivate <u>the technology which specifies the field distribution of far-fields of a parabola waveguide as an approximate scale with a sinc function</u>.

As a result, none of the embodiments shown in *McGreer* <u>quantitatively disclose the range</u> of Z_0 claimed in claim 1 which significantly reduce wavelength dispersion compared to the prior art <u>by using a ratio of the amplitude absolute value and a relative phase</u>.

Furthermore, Applicant submits that because the ranges recited in claim 1 are critical to "simultaneously realize the broad band characteristic of a transmission wavelength of a conventional parabola waveguide and the low wavelength dispersion characteristic," as recited above, simply claiming that an optimization of the claimed ranges would be obvious is not enough.

Therefore, contrary to the assertion of the Examiner, Applicant submits that the ranges of Z_0 recited in claim 1 are not values that are merely the discovering of optimal or workable ranges which is determined as only routine skill in the art. In view of the foregoing, Applicant respectfully asserts that the Examiner has failed to establish a *prima facie* case of obviousness and respectfully requests that the rejection of claims 1 and 2 be withdrawn.

No other objections or rejections were set forth in the Office Action.

Applicant notes that this response does not discuss every reason why the claims of the present application are distinguished over the cited art. Most notably, applicant submits that many if not all of the dependent claims are independently distinguishable over the cited art. Applicant has merely submitted those arguments which it considers sufficient to clearly distinguish the claims over the cited art.

In view of the foregoing, applicant respectfully requests the Examiner's reconsideration and allowance of claims 1 and 2 as presented herein.

In the event there remains any impediment to allowance of the claims which could be clarified in a telephonic interview, the Examiner is respectfully requested to initiate such an interview with the undersigned.

Dated this 19th day of September 2007.

Respectfully submitted,

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